

AMENDMENTS TO THE CLAIMS

Please amend the claims as shown directly below. This listing of claims will replace all prior versions, and listings, of claims in the application.

1.-20. (Cancelled)

21. (Currently Amended) A method of detecting flow from a first zone and a second zone in a multizonal well in a subterranean formation comprising the steps of:

introducing a first photoactive tracer into the first zone;

introducing a second photoactive tracer into the second zone, wherein the first photoactive tracer or the second photoactive tracer comprises a tracer matrix that comprises a photoactive material and a nondegradable polymeric material; and

detecting the first and the second photoactive tracers in the return flow from the first and second zones.

22. (Original) The method of claim 21 wherein the first photoactive tracer and the second photoactive tracer have a different absorption or emitting wavelengths.

23. (Original) The method of claim 21 wherein the first photoactive tracer or the second photoactive tracer comprises fluorescein, rhodamine B, Nile Blue A, or acridine orange.

24. (Original) The method of claim 21 wherein the first photoactive tracer or the second photoactive tracer comprises a fluorescein gel concentrate.

25. (Cancelled)

26. (Currently Amended) The method of claim ~~25~~ 21 wherein the photoactive material comprises a fluorophore, a dye, or a pigment.

27. (Currently Amended) The method of claim ~~25~~ 21 wherein the photoactive material comprises a fluorophore, dye, or pigment that has a blue, green, yellow, orange, orange-red, or red-far red absorption or emission spectrum.

28. (Currently Amended) The method of claim ~~25~~ 21 wherein the polymeric material protects the photoactive material from degradation downhole.

29. (Currently Amended) The method of claim ~~25~~ 21 wherein the polymeric material is substantially water-insoluble.
30. (Currently Amended) The method of claim ~~25~~ 21 wherein the polymeric material comprises a latex, a polystyrene, a polyvinyl chloride, a polyester, a polyolefin, a polycarbonate, or a polybutadiene.
31. (Currently Amended) The method of claim ~~25~~ 21 wherein the tracer matrix is covalently derivatized.
32. (Currently Amended) The method of claim ~~25~~ 21 wherein the tracer matrix is formed by a nucleophilic substitution reaction, a hydroboration reaction, an organo-metallic bond-forming reaction, a pericyclic bond-forming reaction, or a combination of oxidation and reduction reactions.
33. (Currently Amended) The method of claim ~~25~~ 21 wherein the tracer matrix is formed by an emulsion polymerization process.
34. (Currently Amended) The method of claim ~~25~~ 21 wherein the tracer matrix is formed by coating the polymeric material on the photoactive material.
35. (Currently Amended) The method of claim ~~25~~ 21 wherein the tracer matrix is formed by a swelling/shrinking process.
36. (Currently Amended) The method of claim ~~25~~ 21 wherein the polymeric material protects about 50% to 100% of the surface area of the photoactive material.
37. (Currently Amended) The method of claim ~~25~~ 21 wherein the photoactive material is embedded within the polymeric material.
38. (Currently Amended) The method of claim ~~25~~ 21 wherein the tracer matrix further comprises a second photoactive material.
39. (Original) The method of claim 21 wherein detecting either the first photoactive tracer or the second photoactive tracer comprises using a UV detector, a colorimeter, or a fluorimeter.

40.-63. (Cancelled)

64. (New) A method comprising:

introducing into a first portion of a subterranean formation a tracer matrix comprising a first photoactive tracer and a nondegradable polymeric material;

introducing a second photoactive tracer into a second portion of a subterranean formation; and

detecting the first and the second photoactive tracers in the return flow from the first and second portions of the subterranean formation.

65. (New) A method comprising:

introducing a first photoactive tracer into a first portion of a subterranean formation;

introducing into a second portion of a subterranean formation a tracer matrix comprising a second photoactive tracer and a nondegradable polymeric material; and

detecting the first and the second photoactive tracers in the return flow from the first and second portions of the subterranean formation.